

# SELF-INSPECTION HANDBOOK

**GASOLINE  
FACILITIES**

**PHASE I & II  
VAPOR RECOVERY**

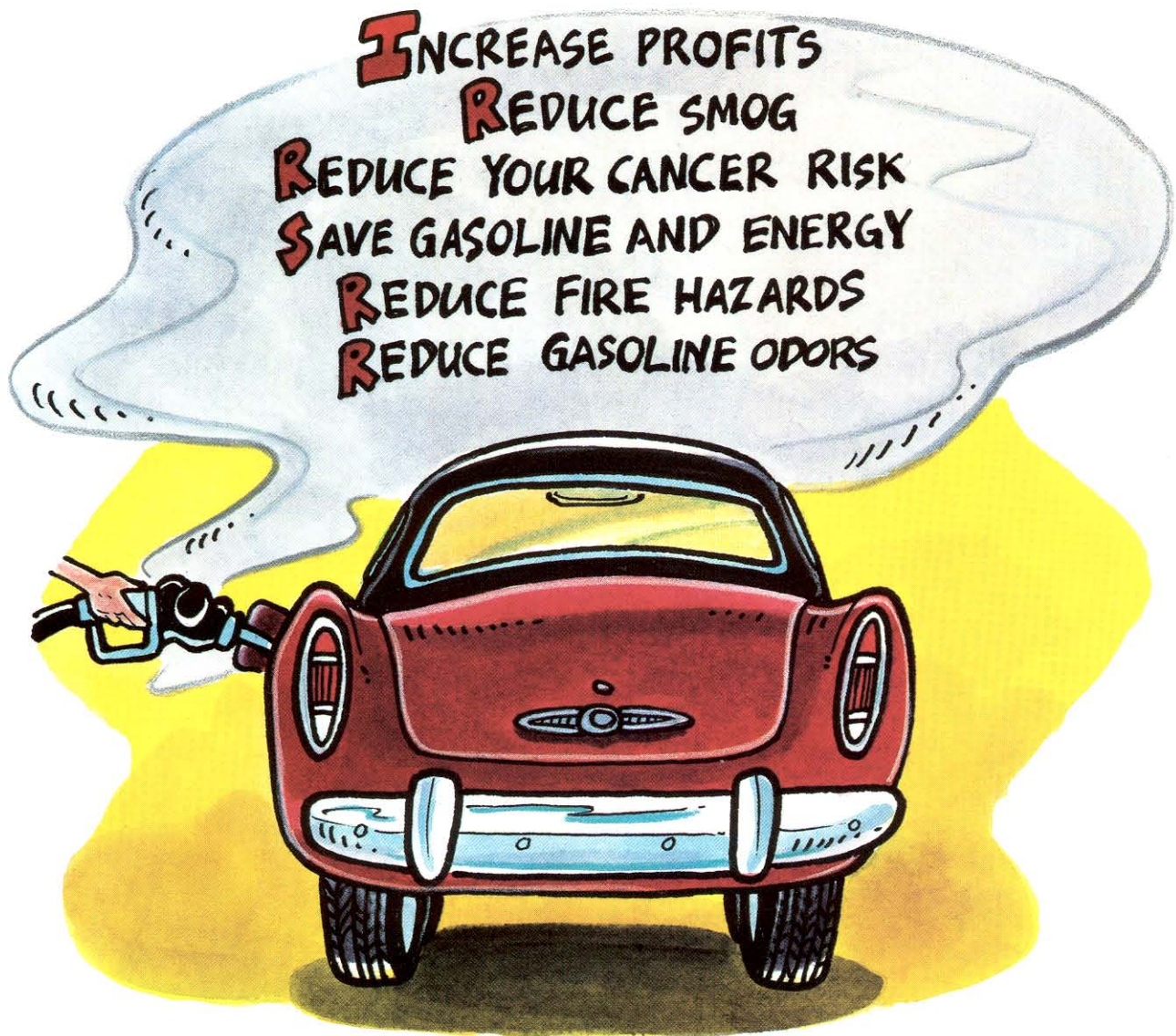
**AIR RESOURCES BOARD  
COMPLIANCE DIVISION  
COMPLIANCE ASSISTANCE  
PROGRAM**

**KNOW THE LAW  
USE CERTIFIED EQUIPMENT  
REDUCE AIR POLLUTION  
STAY IN COMPLIANCE**





# VAPOR RECOVERY SYSTEMS...



Because gasoline vapors contain air pollutants, the California Air Resources Board regulates gasoline vapor recovery through the authority granted in the California Health & Safety Code, Section 41950, Article 5. Your local air district enforces the State and local vapor recovery regulations which apply to your facility.

Vapor recovery systems save over 50 million gallons of gasoline per year in California, increasing your profits while reducing the formation of lung damaging smog. Capturing gasoline vapors also decreases fire hazards, gasoline odors, and your cancer risk, by keeping these toxic fumes out of the air you breathe.



# COMPLIANCE ASSISTANCE?



**SELF INSPECTIONS CAN SAVE YOU MONEY,  
HELP THE ENVIRONMENT  
AND IMPROVE CUSTOMER SATISFACTION!**

This handbook is designed to help you know what the vapor recovery regulations are and how you can benefit from compliance. Read on, and see how easy it is to improve your working conditions and make your customers happy.



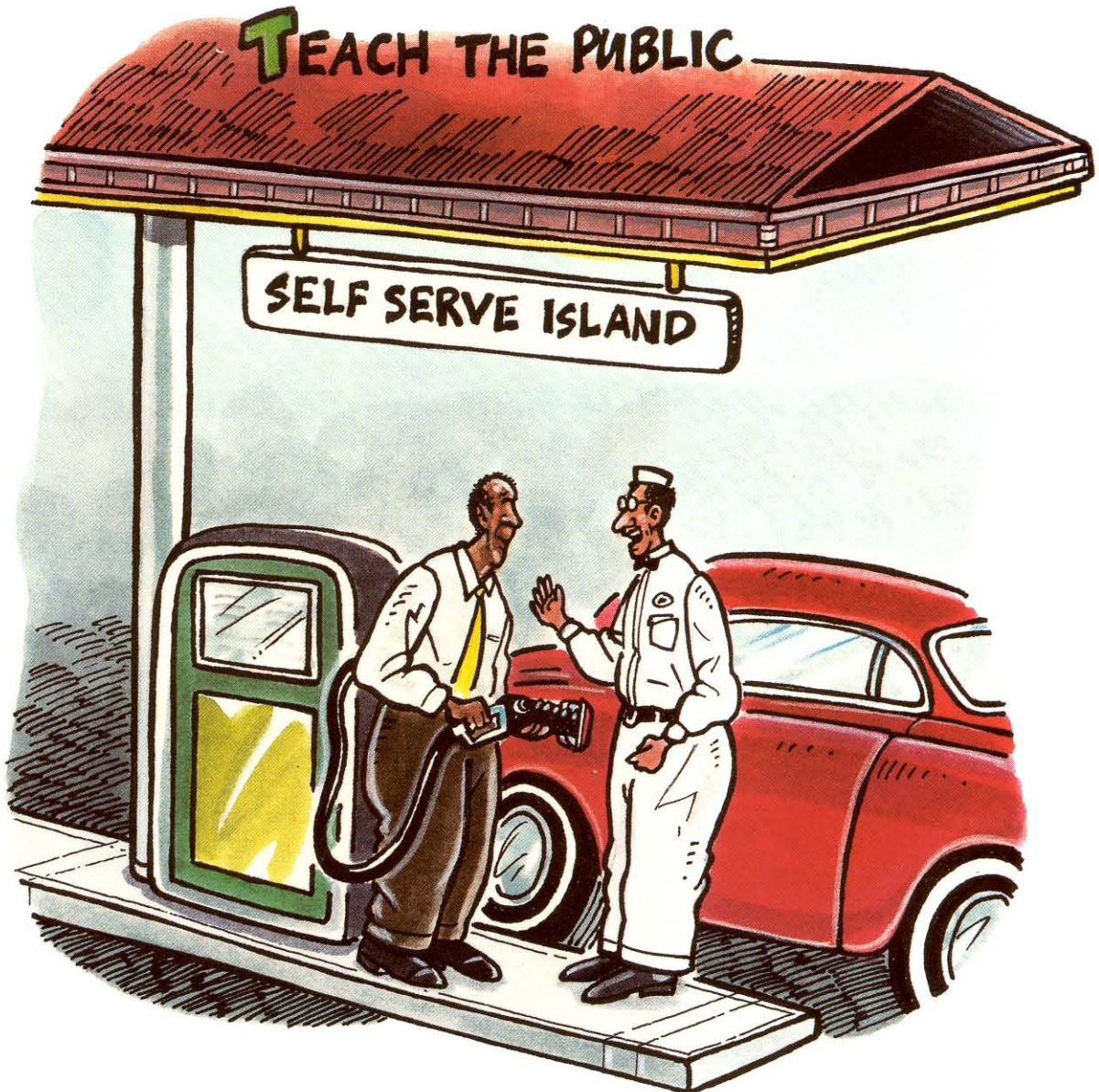


# **V**IOLATING CALIFORNIA LAW IS **VERY COSTLY!**

The penalties for violating air pollution regulations can be \$10,000 per day or more. Upon issuance of a **Notice of Violation (NOV)**, your pumps will be locked out of service until they are repaired. Use this handbook to help you inspect your equipment daily to be sure you are in compliance. Remember, the benefit of keeping your equipment in good condition is not simply avoiding penalties...but also providing a safer workplace, a healthier environment and greater profit.



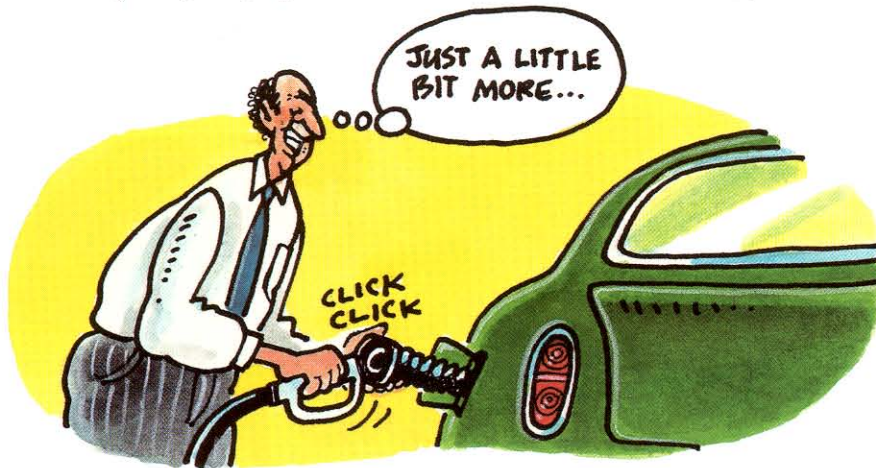
# **I**NSPECT EQUIPMENT DAILY **R**EPAIR OR REPLACE EQUIPMENT WHEN NECESSARY **T**EACH THE PUBLIC



The California Air Resources Board is asking for your help to teach the public. When a customer has a problem with the equipment, take time to check it out. In most cases, just by showing the customer the correct way to operate the equipment, the problem can be solved. By inspecting your vapor recovery equipment every day and keeping it in good working condition, you can improve customer satisfaction while cleaning up the air. If you find a problem, remove the equipment from service until you can fix or replace it.

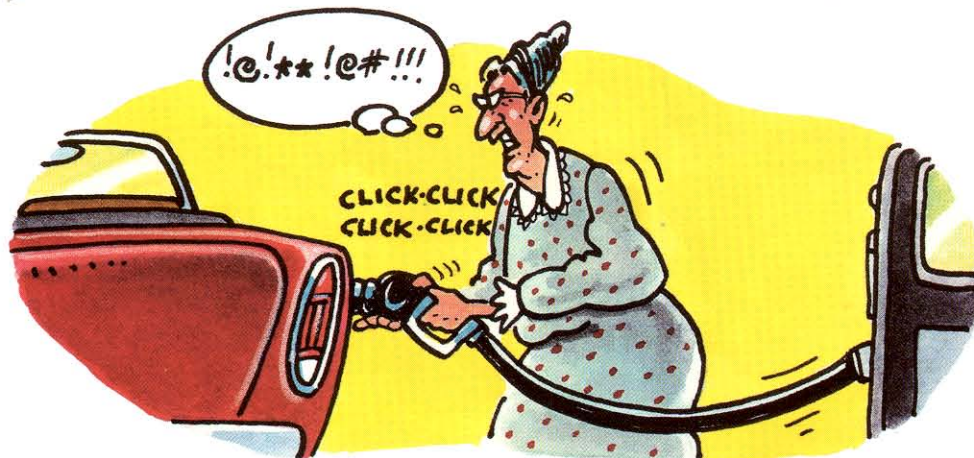


**D**ON'T TOP OFF!  
LIQUID GASOLINE WILL BLOCK THE VAPOR LINE...



...WHEN A WORKING NOZZLE SHUTS OFF—THE TANK IS **FULL!**  
**and...**

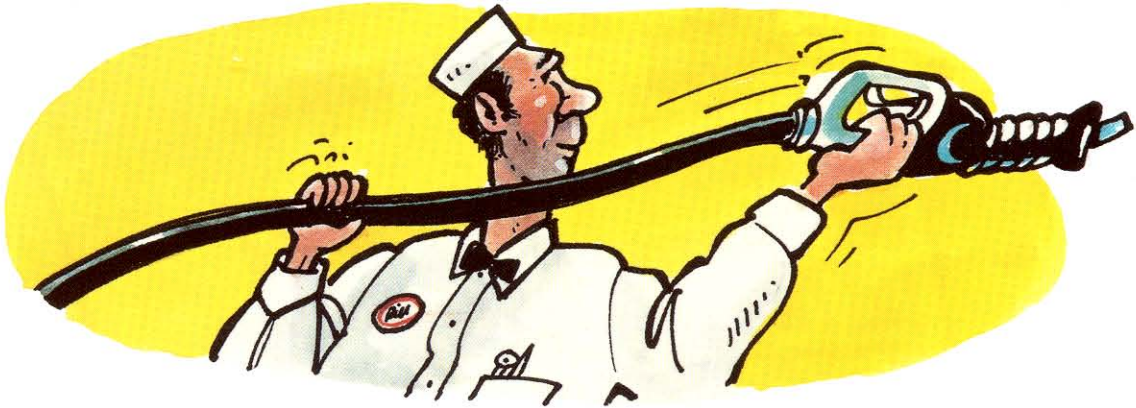
**B**LOCKED LINES ARE **FRUSTRATING!**



**N**OZZLES THAT CLICK OFF TOO SOON...  
INDICATE A BLOCKAGE IN THE VAPOR LINE.

The most common cause of blocked vapor lines is customers topping off their gas tank. When a gas tank overfills, gas travels back down the vapor hose and blocks the line. Unless the line is cleared, the next customer will have trouble keeping the nozzle from automatically shutting off while pumping gas. Please warn your customers not to top off their tanks!

## **C**LEARING THE VAPOR LINE...



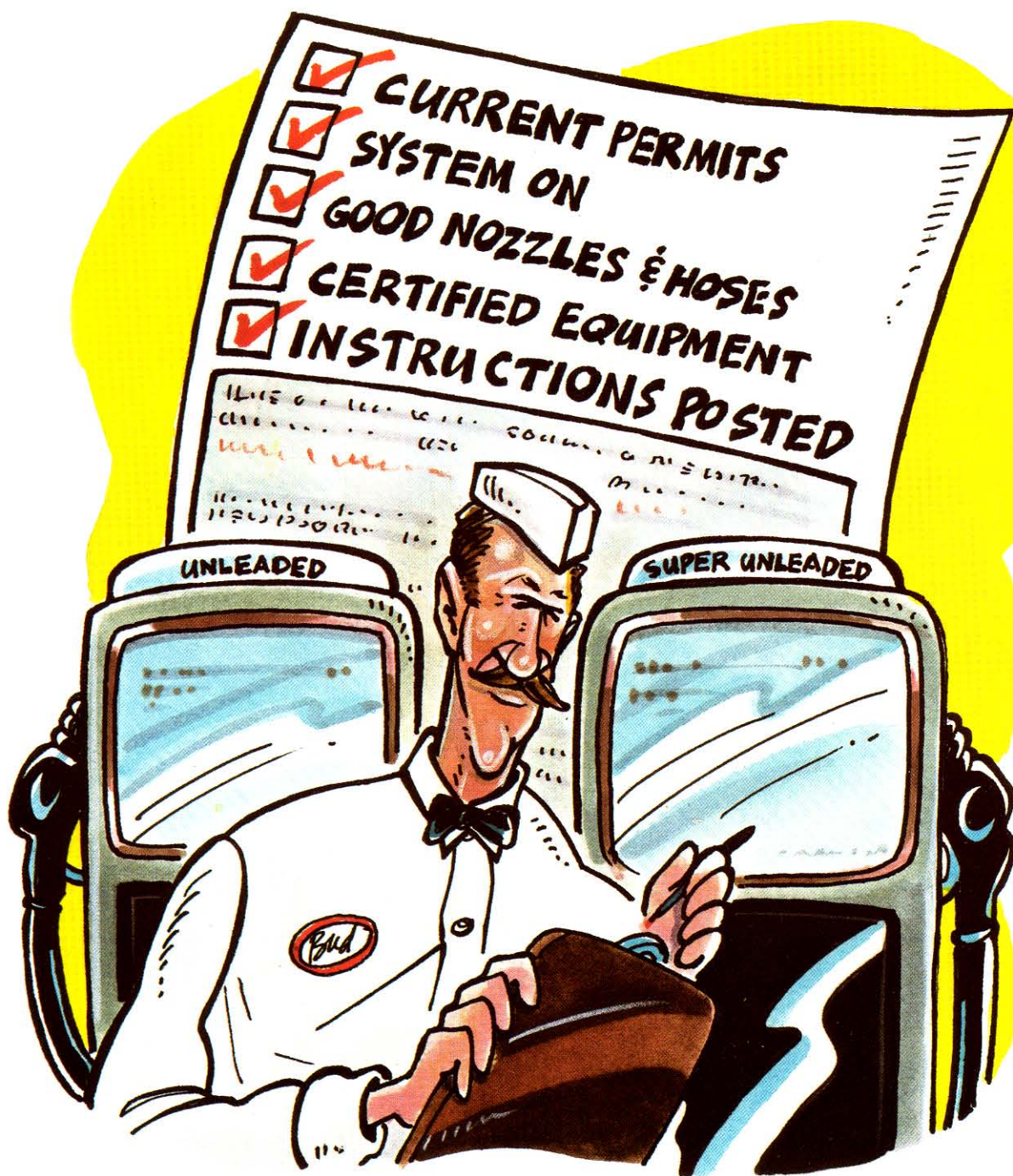
... BY RAISING AND EXTENDING THE HOSE...

**C**AN LEAD TO **SATISFIED CUSTOMERS!**



When a nozzle continually shuts off when trying to fill an empty tank, this indicates either: 1) a liquid blockage in the vapor line; or 2) a broken or improperly installed nozzle component. You can clear the line by raising and extending the hose (This technique will not work with high hanging hoses.) If the nozzle continues to shut off, contact your service representative. Remove a malfunctioning nozzle from service until the problem is fixed.

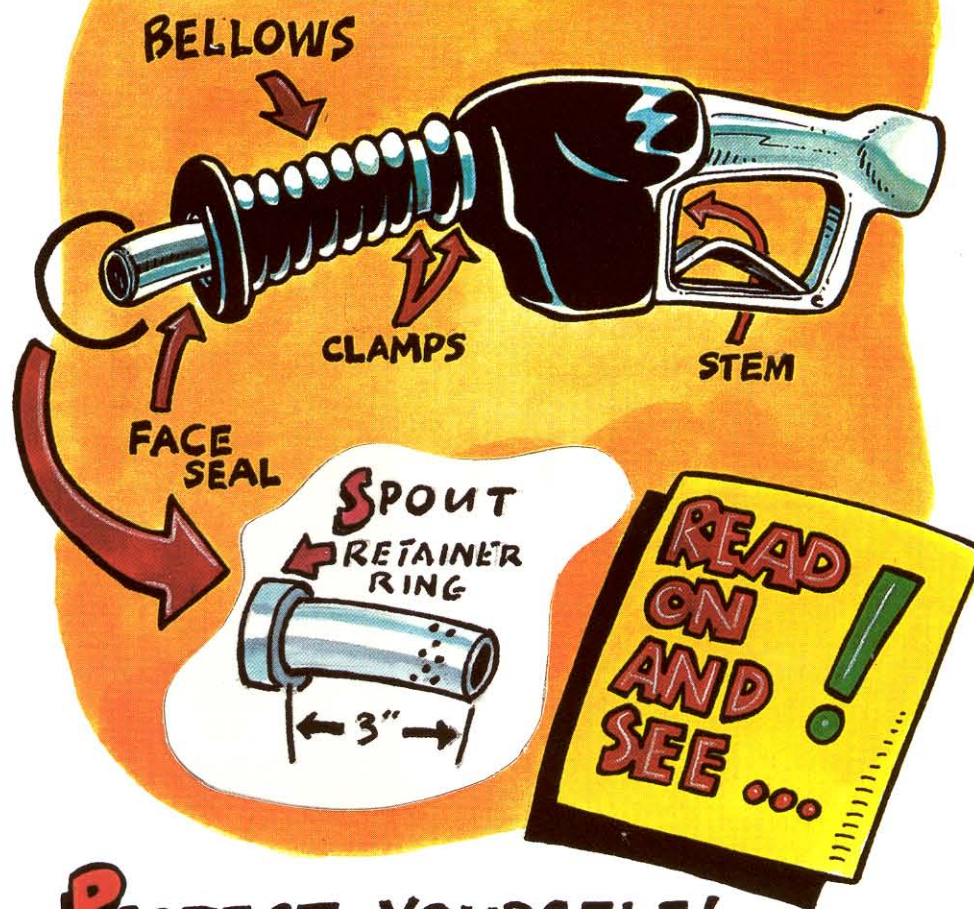




Your local air pollution control inspector will visit your station periodically throughout the year to conduct a complete inspection. The inspector will check your vapor recovery system to see that it is in good working order. This will include checking all components to see that they are certified and defect-free, and that operating instructions and a toll-free air district phone number are posted in plain view of the general public.



## WHAT TO LOOK FOR...



## PROTECT YOURSELF! KNOW THE LAW!

Fix your defects immediately! To avoid penalties, lock the nozzles out of service until the defects are corrected. Common "taggable" defects are shown on the next few pages. These defects warrant the issuance of a **NOV** and are tagged out of service until repaired and reinspected. For a complete listing, check the California Code of Regulations, Title 17, Division 3, Chapter 1, Sub-chapter 8, Article 1, Section 94006, and the applicable Executive Order which certified your vapor recovery system.

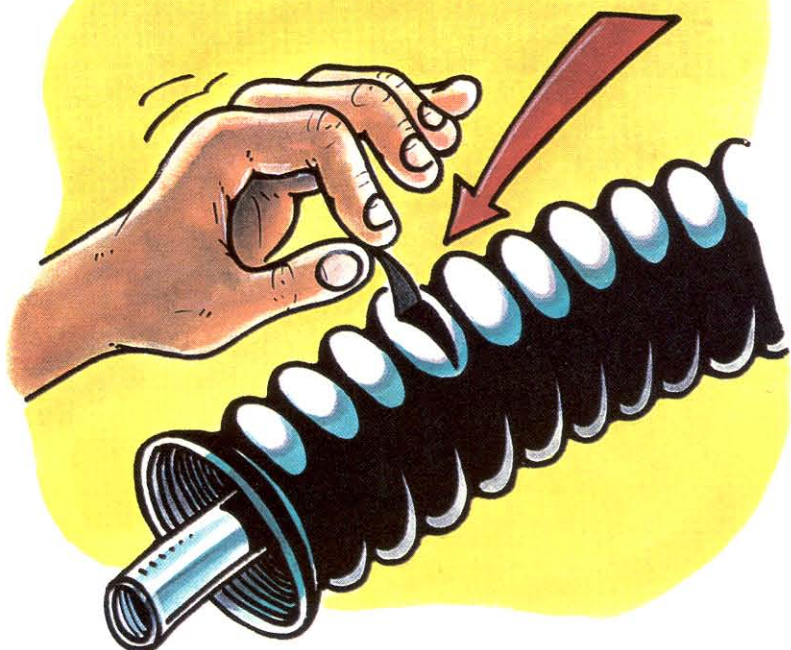
If your equipment doesn't have a defect, but is not set up as certified or is not in good working order, you need to correct the problem immediately. If the district inspector finds this problem, he will issue a **NTC (Notice to Comply)**, and you will have seven days to provide the air district with evidence that the equipment is again in good working order, or you will be liable for penalties.



## PHASE II

### BALANCE NOZZLES

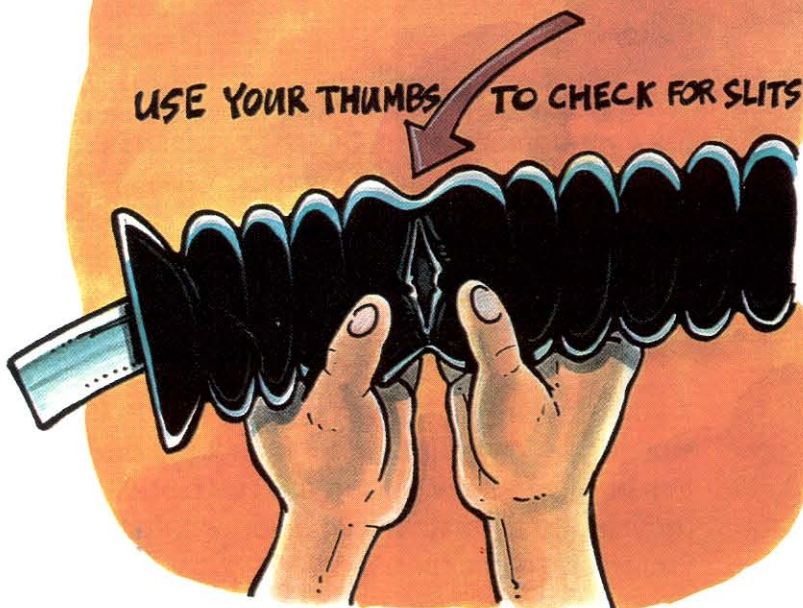
**REPLACE BOOTS WHICH HAVE  
TRIANGULAR TEARS.**



Sometimes customers catch the boot fabric on a sharp object near the gas cap. When this happens, the boot fabric can tear, usually in the shape of a triangle. Any tear longer than 1/2 inch on one side of the triangle is a defect and the boot must be replaced or repaired.

**SLIT BOOTS...  
SHOULD BE REPLACED**

Wear and tear may cause slits to form in the folds of the boot fabric, which will cause a vapor leak. Use your thumbs to separate the ribs of the boot to check for these slits. Replace or repair all boots that have a slit one inch or longer. It's a good practice to replace any torn boot.

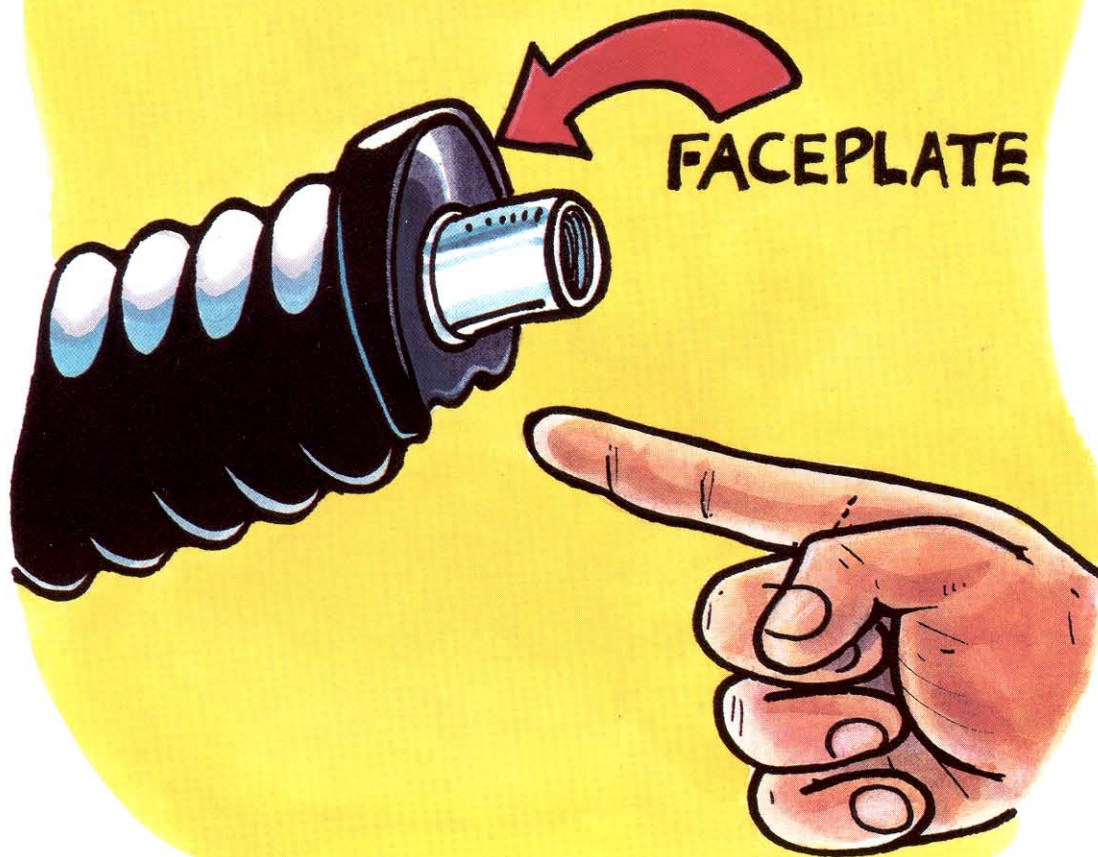




## BALANCE NOZZLES

**AT LEAST...**

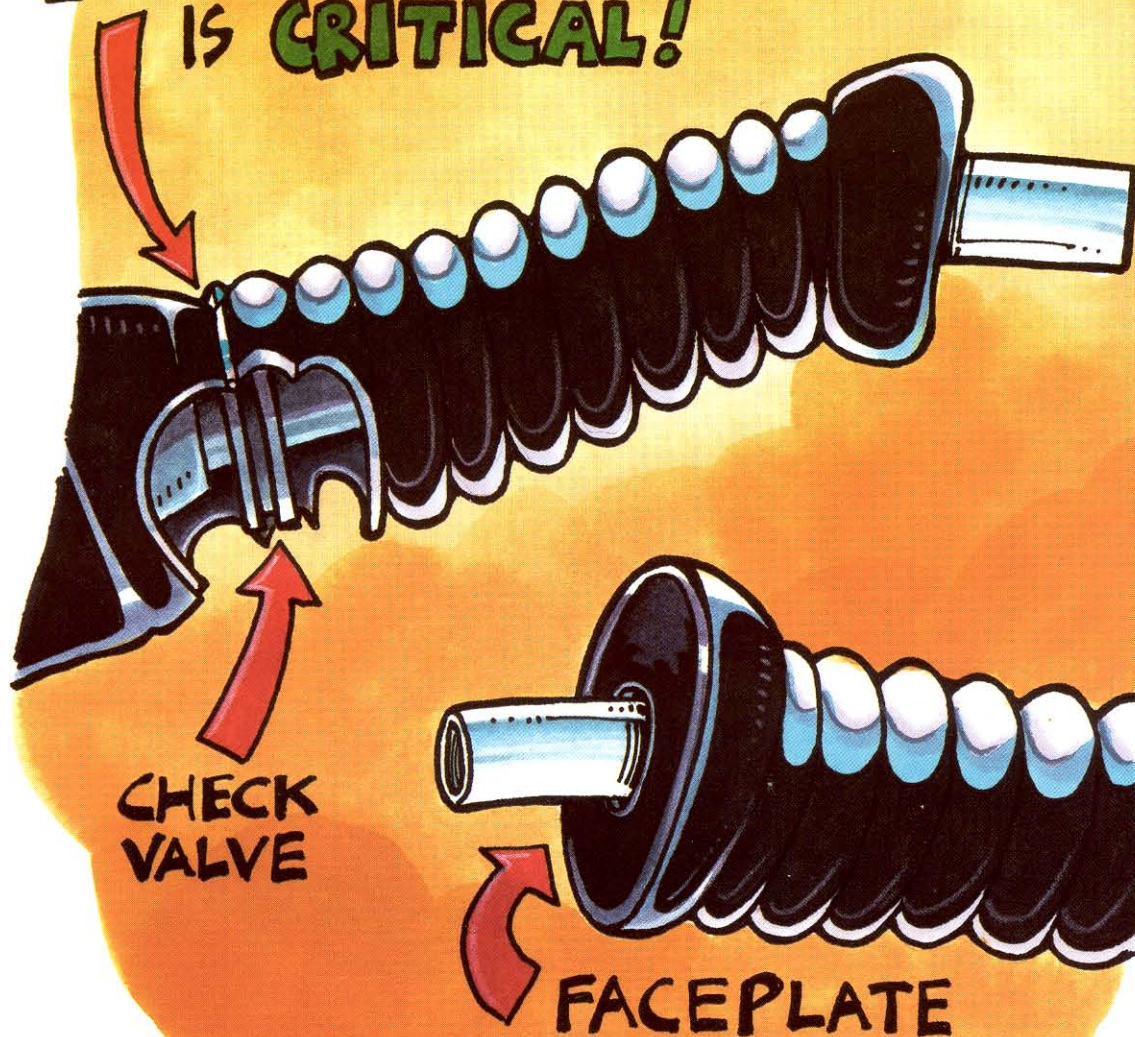
**$\frac{3}{4}$  OF THE FACEPLATE  
MUST MAKE A SEAL!**



If your vapor recovery system nozzles have faceplates (balance system), replace any damaged or warped faceplates. The law requires that at least  $\frac{3}{4}$  of the faceplate circumference must make a good seal when used to dispense gasoline. Examine each nozzle faceplate daily to ensure that a good seal will occur and that at least  $\frac{3}{4}$  of the faceplate is intact. Again, it's best to replace any faceplate which does not provide a good seal with the automobile gas tank.



# **W**IRE OR CLAMP PLACEMENT IS **CRITICAL!**

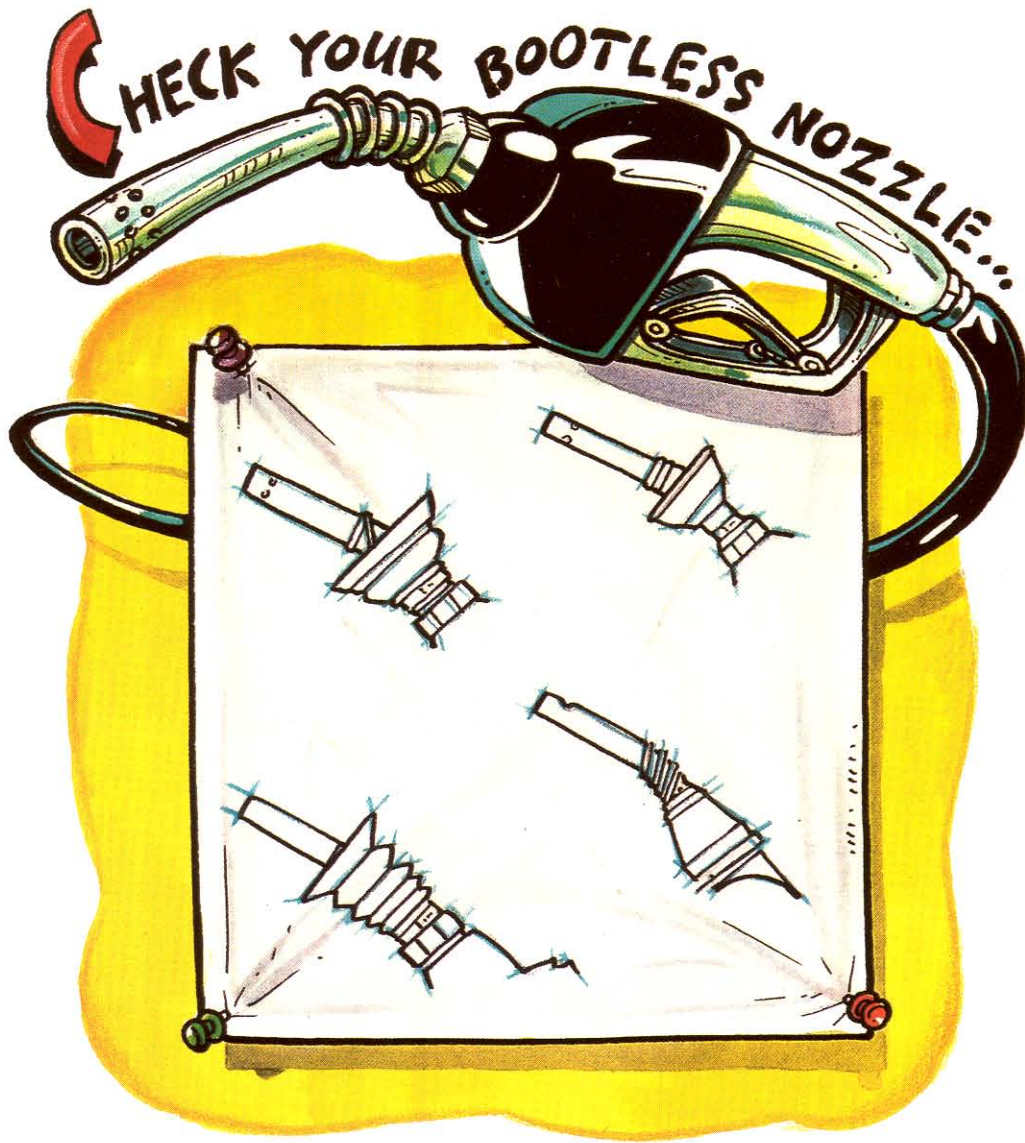


Install your boots correctly! Compression of the boot operates the vapor "check valve" in many nozzles equipped with a faceplate (not a flexible cone). In some older models, the wire or clamp on the upper portion of the boot attaches the boot snugly to the check valve inside. If the wire or clamp is too low, the valve will not open and the nozzle will click off. If the wire or clamp is too high, the valve will stay open and vapors will escape.

Watch for vapors exiting the idle nozzles when someone is fueling nearby. Should you see vapors, be sure your check valves are operating properly!



## BOOTLESS NOZZLES



SPOUT MUST BE COMPLETELY ROUND  
WITH NO DENTS OR BENDS

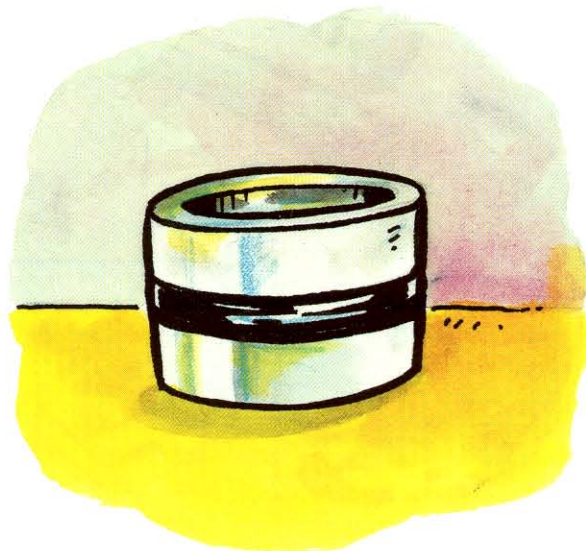
The latest assist nozzle design improvements have eliminated the need for a bellows. These bootless "coaxial spout" nozzles have small holes around the circumference of the spout tip to suck the saturated vapor from the vehicle as the fuel is being delivered. Some nozzles do require a shroud-like device at the base of the spout in order to effectively collect vapor. Check your system's Executive Order for the specific defects and any vapor shroud requirements.



# INSPECTIONS *YOU* CAN PERFORM AT THE PUMP

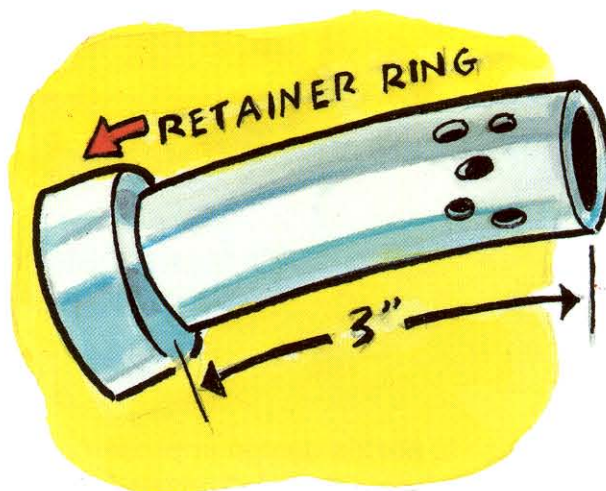
## Ring Gauge Inspection

The ring test is the use of an industry standard round gauge to check the roundness of the spout. No dents or bends should be present. Try to pass the gauge from the tip to beyond the vapor collection holes of the spout. Passing the ring test ensures the Air-to-Liquid Test adapter will fit onto the spout, and that the spout will not damage new model car fill pipes.



## Retainer Spring or Ring

A spring or ring around the spout should be visible and be positioned about 3 inches from the nozzle tip.





## INSPECTIONS YOU CAN PERFORM AT THE PUMP

Nozzle Inspection Procedure - This procedure checks to see if there is an air leak in the vapor recovery system. **THIS TEST IS ONLY TO BE USED AS A DIAGNOSTIC TOOL, AND DOES NOT REPLACE OTHER TESTING REQUIREMENTS.**

Use a bag large enough to enclose the entire vapor recovery nozzle. The bag should be between 10-12 inches wide and 18-20 inches long. The bag should be between 1.5 ml to 4 ml thick.



### Inspection Procedure

Remove the nozzle to be tested from the dispenser holster. Carefully drain any liquid retained in the nozzle/hose assembly into an approved gas can. Cut a small hole (0.75 inches diameter) into the sealed end of the bag. Slip the bag over the nozzle, inserting the spout through the small hole in the end of the bag. Use a flexible connector to secure the bag to the nozzle spout, ensuring that at least 3 inches of spout length is exposed. Ensure that some air is in the bag and use your hand, or a flexible connector, to provide a tight seal between the bag and the nozzle/hose connection. Insert the spout into the vehicle tank and begin dispensing. Watch the bag for any signs of collapse. If the bag does not show a definite collapse due to air being removed after 2.5 gallons, the nozzle is probably vapor tight and the test is over. If the bag collapses, it verifies that there is air sucking into the nozzle and the nozzle must be repaired or replaced.

More vapor recovery inspection procedures are reviewed in the Compliance Assistance Gasoline Facilities Technical Manual.



# WHEN A DRIVE OFF OCCURS...



1.) INSPECT HOSES FOR  
TEARS & CUTS

2.) INSPECT NOZZLES FOR  
BENDS & DENTS



INSPECT  
BREAK AWAY  
ASSEMBLY



The Emergency Breakaway Assembly protects the dispenser and provides safety by reducing the risk of fire in the event of a drive-off. After a drive-off, inspect the nozzle, hose and breakaway for damage. Replacement or reconnection of the breakaway assembly should be performed by a qualified person. The use of a maintenance contractor can ensure that components are intact and working when the breakaway assembly is reattached. If no breakaway assembly exists, the dispenser cabinet should also be inspected for damage.



# **REMOVE...**

## **MALFUNCTIONING NOZZLES FROM SERVICE**

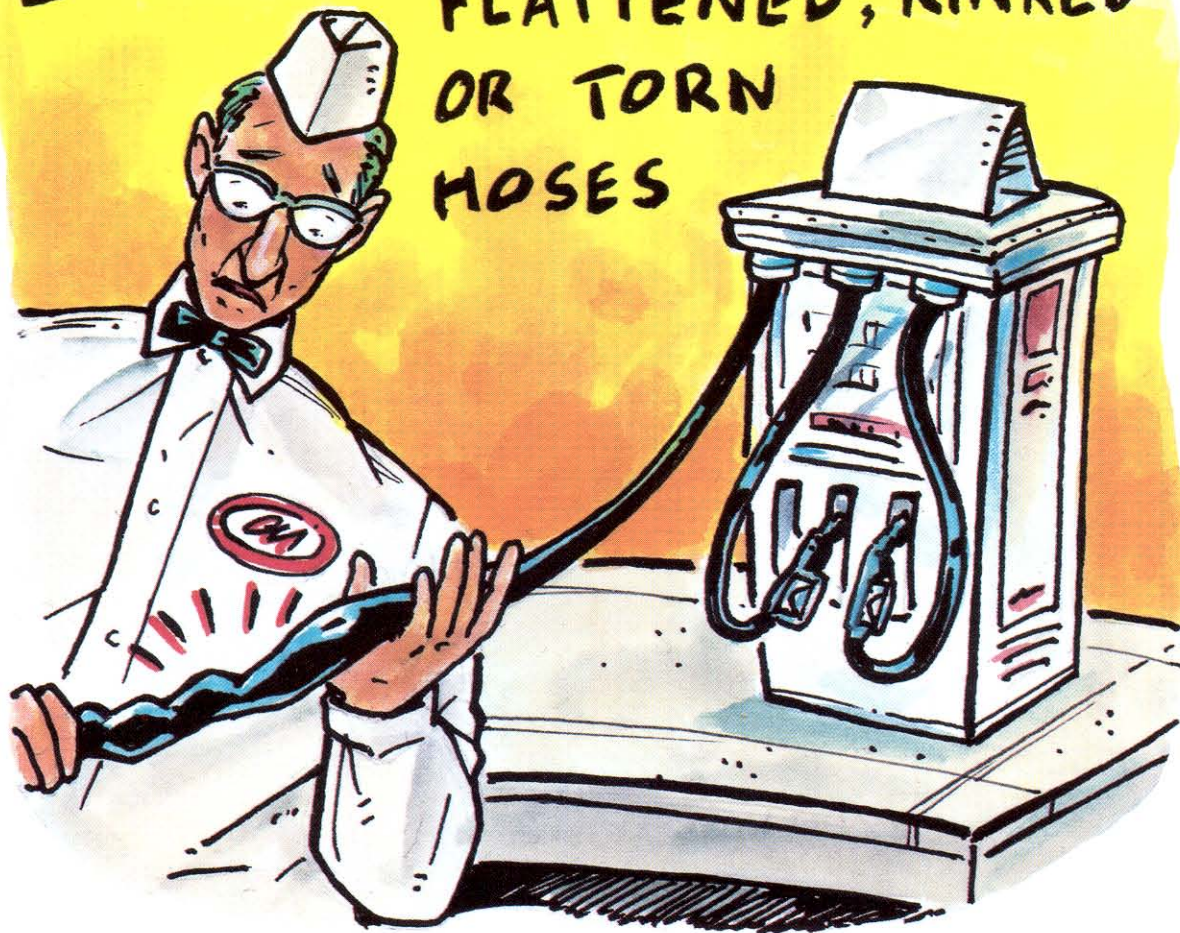


**IF A NOZZLE FAILS TO SHUT OFF...  
REMOVE IT FROM SERVICE IMMEDIATELY!**

Sometimes the interior components of the nozzle can fail. When a micro-switch is broken the nozzle will not automatically shut off. This can cause overfilling of the tank and, as with topping off, result in liquid gasoline blocking the vapor line. Remove these malfunctioning nozzles from service and get them repaired.



# REPLACE ANY FLATTENED, KINKED OR TORN HOSES



The newer hoses carry the fuel and the vapors in a hose-within-a-hose system. The "coaxial" type carries vapors to the underground tank through the outer compartment and fuel to the vehicle in the inner compartment. The "inverted coaxial" type is the reverse. If a coaxial hose or single vapor line is torn, vapors escape into the air, exposing you and your customers to air pollutants. An internal tear in an inverted coaxial hose may leak fuel from the nozzle.

Hoses that are kinked, flattened or full of gasoline cause the nozzle to constantly shut off while fueling, making customers very unhappy. Some hoses contain liquid removal systems, which must be installed in the correct direction to work properly. Check your hoses daily for damage and proper installation. Replace any damaged lines.



# IS THE PART CERTIFIED?



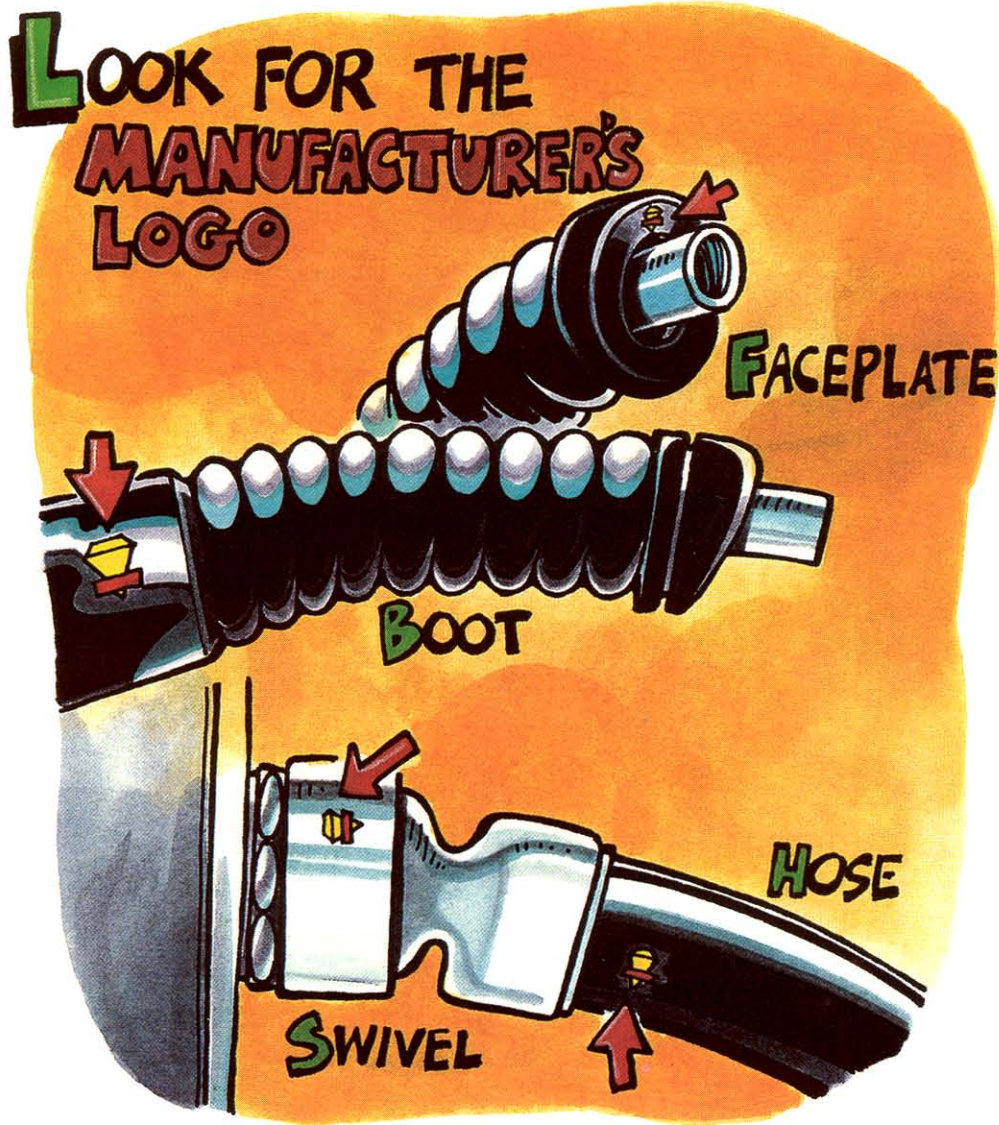
Make sure your vapor recovery components are certified by the California Air Resources Board as being capable of recovering at least 95 percent of gasoline vapors displaced from refueling. Make sure **all** of your components are certified. If you cannot determine if a part is certified for use with your system, call and find out. First contact your company supplier. If you are still not sure, contact your local air district, or the California Air Resources Board at 1-800-952-5588. Remember, the use of uncertified components could subject you to a fine of \$10,000 per day or more.



## Equipment Warranties - New vs. Rebuilt

New Equipment - 1 year warranty

Rebuilt - No warranty



### Review Operating and Maintenance Manuals

The California Air Resources Board certifies the Phase II Vapor Recovery Equipment. The use of equipment which has not been certified by the State is against the law and you may be subject to a large penalty. It is your responsibility to make sure all of your equipment is certified. Look for the manufacturer's logo and the State Fire Marshal sticker.



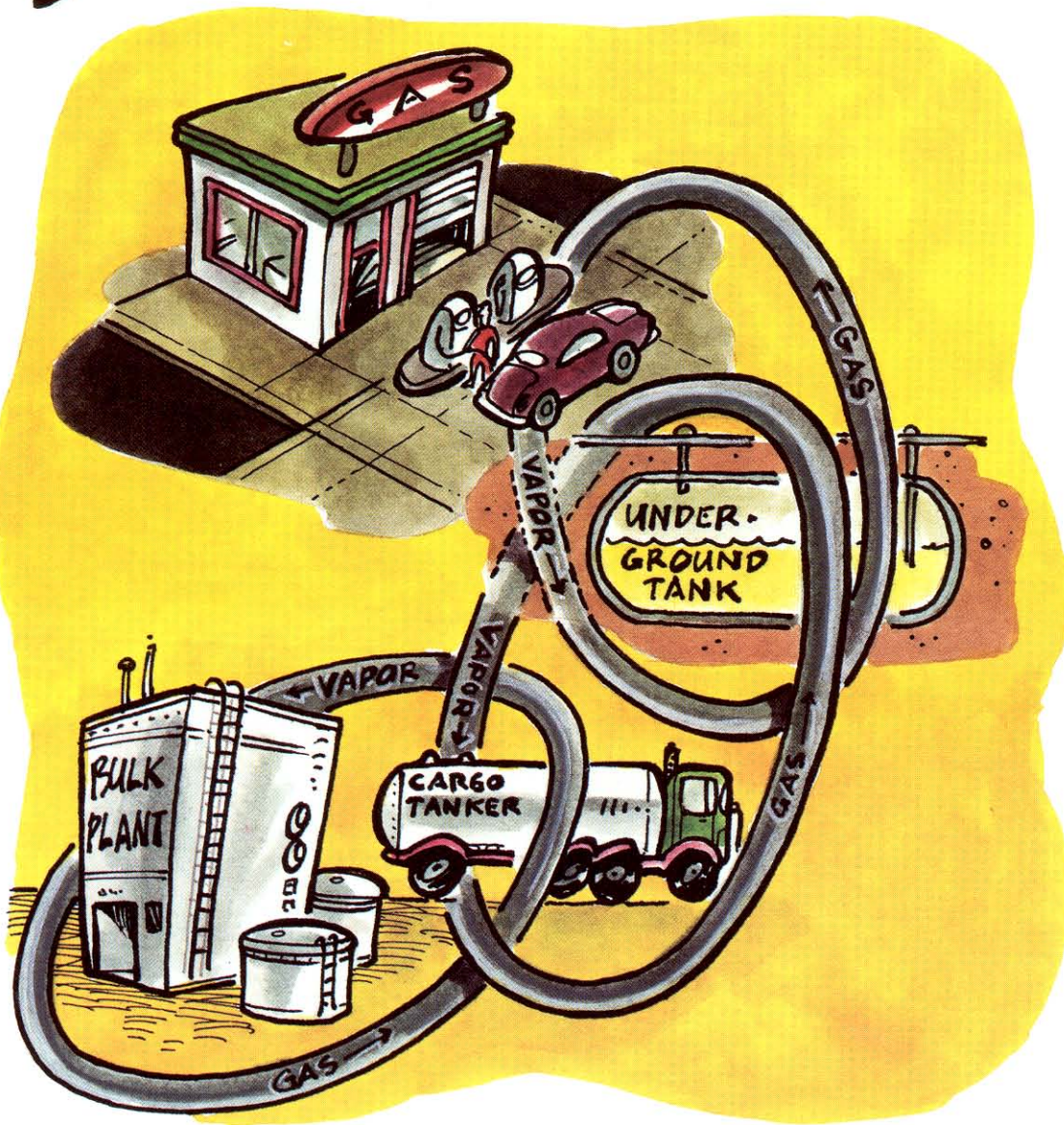
**IF YOU HAVE A PROCESS UNIT  
MAKE SURE IT'S WORKING!**



20



# DON'T BREAK THE CHAIN...

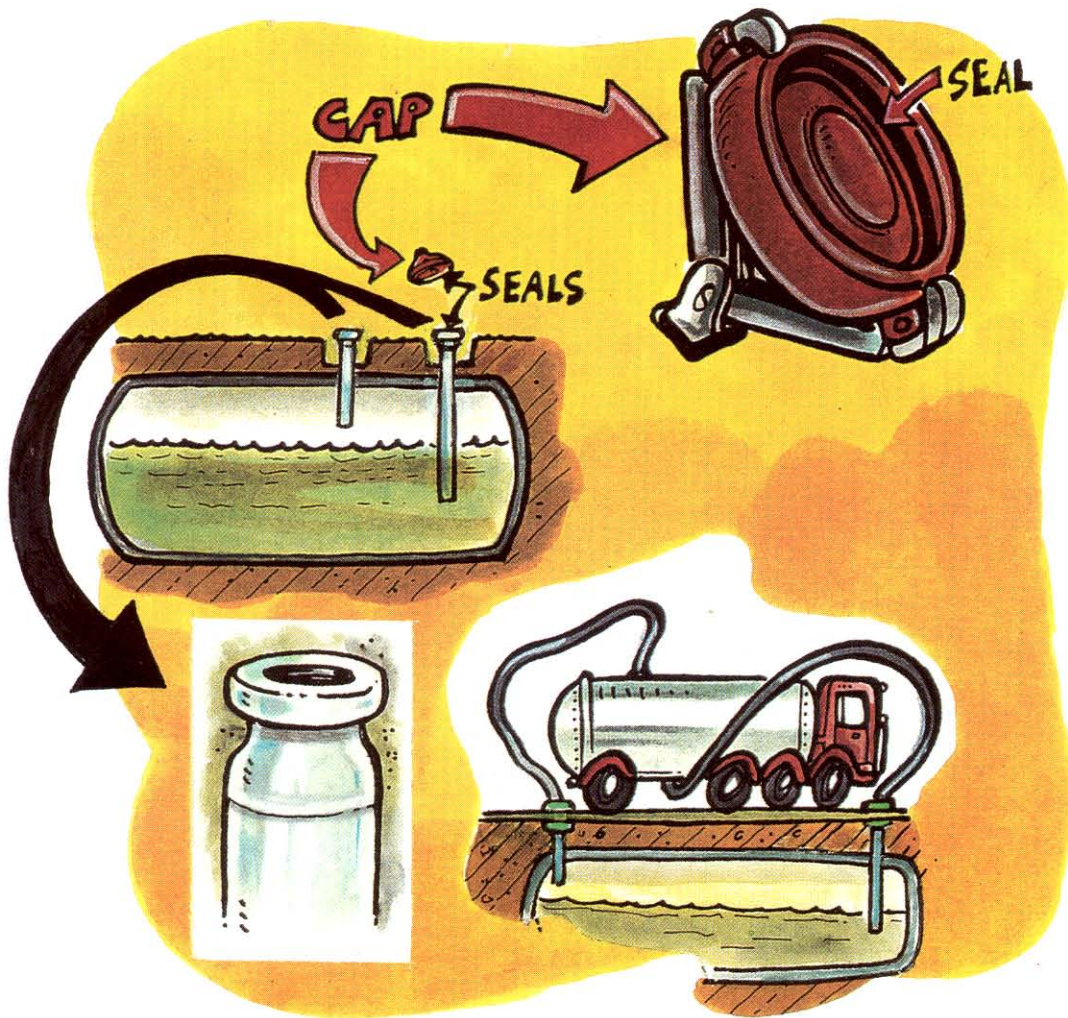


The reason your station is equipped with a vapor recovery system is to collect vapors from your customers' gasoline tanks and return them to a petroleum terminal to be recovered as gasoline. This process involves your customers, you, the delivery truck which delivers your gasoline, and the facilities where the delivery trucks got the gasoline. At any location along this chain, if someone fails to use the vapor recovery equipment or forgets to keep it in good working order, these harmful vapors escape and contribute to our air pollution.



## Phase I

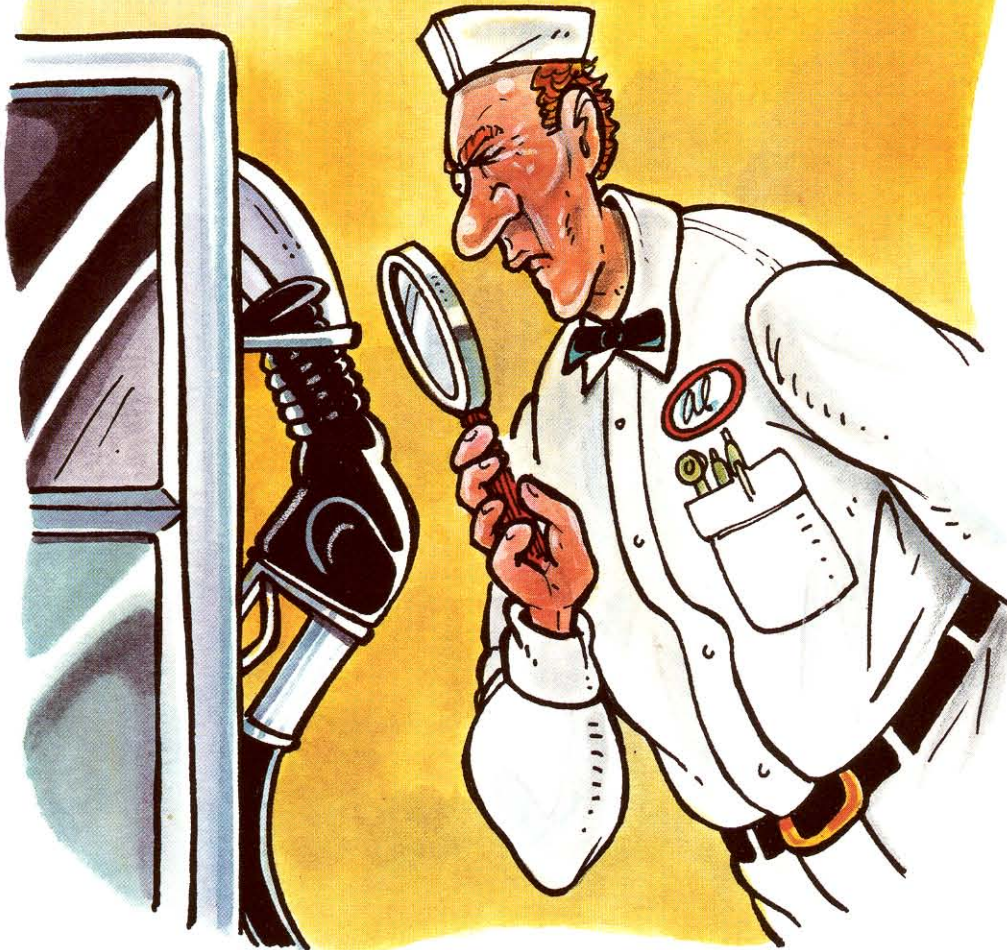
# CHECK YOUR: TANKS, SEALS & CAPS !



Check drop tube collar for tightness and presence of gasket. New collar designs may incorporate a rotating feature while properly installed. Check to make sure the vapor adapter is securely tightened to the riser pipe. Check to be sure your seals are in good operating condition and the caps are on your underground tanks. This is especially important after a gasoline delivery is made. Also, be sure that the driver of the delivery truck hooks up both the gasoline line and the vapor line.



# GIVE YOUR SYSTEM THE "ONCE OVER" DAILY



Every morning when you unlock the pumps, or better yet at each shift change, give your vapor recovery system the "once over." Check each piece of vapor recovery equipment for wear and damage, making sure everything is in good working condition. Identify any potential problems and tag equipment out of service until repair or replacement occurs. Do your part to help yourself, your customers, and the environment.



# SELF INSPECTION CHECKLIST

**WEEK OF:**

	SUN	MON	TUES	WED	THUR	FRI	SAT
HOSES							
BOOTS							
FACEPLATES							
FLEXIBLE CONES							
NOZZLE SHUT-OFF							
CHECK-VALVES							
CERTIFIED EQUIPMENT							
UNDERGROUND TANKS							
VAPOR RECOVERY SYSTEM							

NO KINKS, FLAT SPOTS, BLOCKAGES  
 NO TRIANGULAR TEARS, SLITS  
 GOOD SEALS NOT MISSING  
 NO SHUTOFF MALFUNCTIONS  
 PROPERLY WIRED/CLAMPED  
 NO MISSING LABELS/STICKERS  
 MISSING SEALS  
 ALL VALVES CLOSED  
 POWER ON  
 COMPRESSOR WORKING

This self inspection checklist is a good way to protect yourself from large penalties and loss of business. This checklist, used with your vapor recovery handbook, will help you prepare for your periodic air pollution control inspection. The information contained in the handbook and checklist covers the basic requirements you need to know.

For further information, you should read your underground storage tank license and ask your inspector any specific questions you may have about your particular vapor recovery system. Additional vapor recovery information is available on the web site at:  
**[www.arb.ca.gov/vapor/vapor.htm](http://www.arb.ca.gov/vapor/vapor.htm)**.

Experience tells us that the best way to comply with air pollution regulations is to know the law and inspect your equipment daily!!



## NOTES



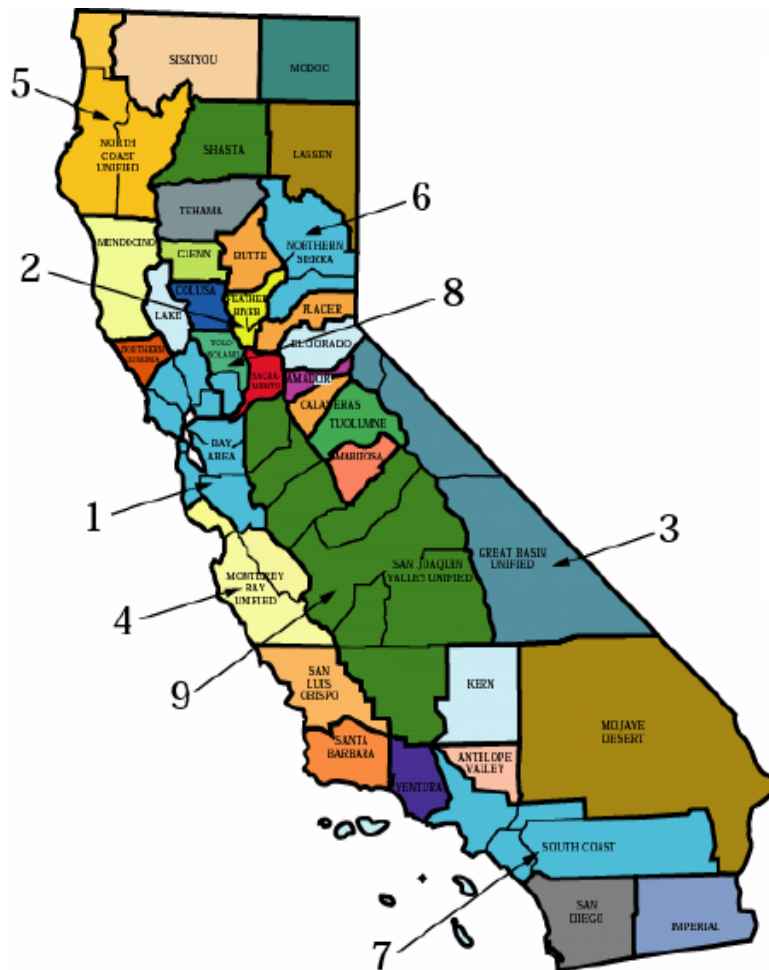
## NOTES



# Need More Information?

Air Resources Board (800) 952-5588

District: \_\_\_\_\_



## Multi-County Districts

- 1 - Bay Area (415) 749-5000
- 2 - Feather River (530) 634-7659
- 3 - Great Basin (760) 872-8211
- 4 - Monterey Bay (831) 647-9411
- 5 - North Coast (707) 443-3093
- 6 - Northern Sierra (530) 274-9360
- 7 - South Coast (909) 396-2000
- 8 - Yolo-Solano (530) 757-3650
- 9 - San Joaquin Valley (559) 230-6000

## County Districts

Amador (209) 257-0112	Lake (707) 263-7000	San Diego (858) 650-4700
Antelope Valley (661) 723-8070	Lassen (530) 251-8110	San Luis Obispo (805) 781-4247
Butte (530) 891-2882	Mariposa (209) 966-2220	Santa Barbara (805) 961-8800
Calaveras (209) 754-6504	Mendocino (707) 463-4354	Shasta (530) 225-5789
Colusa (530) 458-0590	Modoc (530) 233-6419	Siskiyou (530) 841-4029
El Dorado (530) 621-6662	Mojave Desert (760) 245-1661	Tehama (530) 527-3717
Glenn (530) 934-6500	No. Sonoma (707) 433-5911	Tuolumne (209) 533-5693
Imperial (760) 482-4606	Placer (530) 889-7130	Ventura (805) 645-1400
Kern (661) 862-5250	Sacramento (916) 874-4800	

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California Environmental Protection Agency

 **Air Resources Board**



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